

CLAIMS

1. An isolated nucleic acid molecule that encodes protein comprising at least one epitope of membrane IgE and being free of epitopes of serum IgE.
- 5 2. The nucleic acid molecule of claim 1 wherein said protein is membrane IgE or a fragment thereof.
3. The nucleic acid molecule of claim 2 wherein said protein is membrane IgE.
- 10 4. The nucleic acid molecule of claim 1-3 further comprising coding sequence encoding of at least one non-IgE helper T cell epitope.
5. The nucleic acid molecule of claim 4 wherein the coding sequence encoding of at least one non-IgE helper T cell epitope encodes tetanus toxoid Th epitope.
- 15 6. The nucleic acid molecule of claims 2-5 wherein said nucleic acid molecule is a plasmid.
7. The isolated nucleic acid molecule of claims 2-5 wherein said nucleic acid molecule is incorporated in a viral vector or a bacterial cell.
- 20 8. A vaccine composition comprising a nucleic acid molecule of claims 1-7 and a pharmaceutically acceptable carrier or diluent.
- 25 9. A method of treating an individual who has been identified as being susceptible to an IgE mediated allergic disease or condition comprising the step of administering to such an individual a prophylactically effective amount of a vaccine of 8.
- 30 10. A method of treating an individual who has been identified as having an IgE mediated allergic disease or condition comprising the step of administering to such an individual a therapeutically effective amount of a vaccine of 8.

11. An isolated protein comprising at least one epitope of membrane IgE and being free of epitopes of serum IgE.

12. The isolated protein of claim 11 wherein said protein is membrane IgE or a fragment thereof.

13. The isolated protein of claim 12 wherein said protein is membrane IgE.

14. The isolated protein of claim 11 further comprising tetanus toxoid Th epitope.

15. The isolated protein of claim 11-14 wherein said protein is haptenized.

16. The vaccine composition comprising an isolated protein of claims 11-15 and a pharmaceutically acceptable carrier or diluent.

17. The vaccine composition of claim 16 further comprising tetanus toxoid Th epitope.

18. A vaccine composition comprising killed or inactivated cells or particles that comprise a protein of claims 11-15 and a pharmaceutically acceptable carrier or diluent.

19. The vaccine of claim 18 wherein said killed or inactivated cells or particles are haptenized.

20. A method of treating an individual who has been identified as being susceptible to an IgE mediated allergic disease or condition comprising the step of administering to such an individual a prophylactically effective amount of a vaccine of claims 16-19.

21. A method of treating an individual who has been identified as having an IgE mediated allergic disease or condition comprising the step of administering to such an individual a therapeutically effective amount of a vaccine of claims 16-19.

22. A host cell comprising an isolated nucleic acid molecule that encodes protein comprising at least one epitope of membrane IgE and being free of epitopes of serum IgE.

23. The host cell of claim 22 wherein said protein is membrane IgE or a fragment thereof.

24. The host cell of claim 23 wherein said protein is membrane IgE.

25. The host cell of claim 22-24 further comprising coding sequence encoding of at least one non-IgE helper T cell epitope.

26. The host cell of claim 25 wherein the coding sequence encoding of at least one non-IgE helper T cell epitope encodes tetanus toxoid Th epitope.

27. The host cell of claims 22-26 wherein said nucleic acid molecule is a plasmid.

28. A method of producing a protein comprising at least one epitope of membrane IgE and being free of epitopes of serum IgE comprising culturing a host cell of claims 22-27 and isolating said protein expressed thereby.

29. The method of claim 28 wherein the protein is isolated using antibodies that specifically bind to said protein.

30. Antibodies that specifically bind to a protein of claims 11-14.

31. The antibodies of claim 30 wherein said antibodies are Mabs, humanized Mabs, human antibodies, or Fab or (Fab)₂ thereof